

REMARKS

Claims 1-9, 11-20, 22 and 23 were at issue. Claims 1-9, 11-20, 22 and 23 were rejected. The Examiner made the following rejections / objections:

- I. The Claims Are Allegedly Rejected As Being Anticipated
 - A. Claims 1, 2, 5-9, 11-13, 16-20 and 22 are rejected under 35 U.S.C. § 102(b) as being anticipated by Dahll (U.S. Pat. No. 5,195,757).
 - B. Claims 1-9, 22 & 24 are rejected under 35 U.S.C. § 102(b) as being anticipated by Zitting (U.S. Pat. No. 4,577,874).
 - C. Claims 1,2, 4-7, 9, 11-13, 15-18 and 20 are rejected under 35 U.S.C. § 102(b) as being anticipated by Blackman et al. (U.S. Pat. No. 5,452,771).
- II. Claims 11-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Zitting.
- III. Claim 22 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-46 of U.S. Patent No. 6,105,968
- IV. The Examiner makes two Objections; one concerning Claim 11 and a second concerning Claim 12.

Applicants believe the present amendments and the following remarks traverse the Examiner's rejection of the claims. These remarks are presented in the same order as they appear above.

I. The Claims Are Not Anticipated

A single reference must disclose each limitation of a claim in order for that reference to anticipate the claim. *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 224 U.S.P.Q. 409, 411 (Fed. Cir. 1984). This standard is not met by any of the references cited by the Examiner.

A. Claims 1, 2, 5-9, 11-13, 16-20 And 22 Are Not Anticipated By Dahll

The Examiner states that "Figs. 1-3 show that the protrusions 12 are equidistant, identical, of unitary construction and formed of elastomeric material ...". *Office Action*, pg. 2 ¶ 4. The Applicants disagree. Dahll teaches a seal that encircles a cylindrical object. A seal biased against a relatively flat surface is not taught by Dahll. Nonetheless, without acquiescing to the Examiner's argument and in order to further the prosecution (while expressly reserving the right to prosecute the original (or similar) claims in subsequent applications) Applicants have amended Claims 1, 12 and 22 to further define one embodiment wherein the claimed textured features as "circumferentially located".¹ Support for this amendment is found in the following excerpt from the specification as filed:

The term "circumferentially located" as used herein refers to the placement of textured features **toward the outer edge of the contact surface** and in a manner whereby they are out of the plane of the contact surface (e.g., perpendicular) as opposed to being placed radially (i.e., in the plane of the contact surface). *Application as filed*, pg. 8 *ln 14-19*. [emphasis added]

Dahll plainly teaches protrusions that are continuous from one end of the contact surface to the opposite end of the contact surface and, therefore, unlike the claimed embodiment, are not confined to the outer edge of the contact surface:

...there are four (4) bands 34 formed circumferentially about the lip surface 26 and spaced axially therealong **between the first end 28 and second end 30**. ... The protrusions 36 extend radially outwardly from the lip surface 26 into the aperture 24 and are **circumferentially continuous** about the lip surface 26." *Dahll*, col 3 *ln 12-15*. [emphasis added]

That is to say, the protrusions in Dahll are not "circumferentially located." The Applicants, therefore, respectfully submit that Dahll fails to teach each and every element of the embodiment claimed by the Applicants. Therefore, the reference cannot anticipate.

¹ The Specification describes a number of embodiments, this embodiment being only one of many.

B. Claims 1-9, 22 & 24 Are Not Anticipated By Zitting

The Examiner asserts "[t]he textured features [in the patent to Zitting] comprise cylindrical, identically shaped, equidistant protrusions 134 & 136 having a recess 138." *Office Action*, pg 3 ¶ 5. The protrusions in Zitting, however, **do not extend outward from the contact surface**. Zitting teaches an apex, either straight or modified, THAT IS the sealing surface. In element 61 of FIG. 4, Zitting clearly depicts the contact surface between the sealing element 14 and the machine wall 49. The written description makes this interpretation of FIG. 4 unambiguous;

In the radially compressed state, the apex 41 is slightly flattened to form a narrow ribbon, band or line **seal site contact area 61** (FIG. 4). The axial distance of the site 61 is substantially less than the axial distance of the composite seal 10. *Zitting*, col 6 ln 31-35. [emphasis added]

and,

The apex portion 132 comprises a pair of rounded annular shoulders 134 and 136 with an annular groove 138 interposed therebetween. Under high pressure conditions during use, the engagements of the tip portions 134 and 136 with the machine part wall 4[9] will exert greater pressure than will engagement of the groove portion 1[38]. ... the engagement of apex portion 132 with machine wall 49 will be essentially a **narrow sealing area** ... *Zitting*, col 7 ln 57 - col 8 ln 1. [emphasis added]

Therefore, both the apex 41 and apex portion 132 are defined by Zitting as the contact surface and not as *protrusions* extending outward FROM a contact surface. The Applicants, therefore, respectfully submit that Zitting fails to teach each and every element of the embodiment now claimed by the Applicants. Therefore, the reference cannot anticipate.

C. Claims 1,2, 4-7, 9, 11-13, 15-18 & 20 Are Not Anticipated By Blackman et al.

The Examiner states that,

"Fig. 2 shows a seal comprising a mounting ring 43 attached to a[] seal ring 30. Fig. 4B shows the seal ring 130 comprises a contact surface ... [and] The textured features comprise cylindrical identically shaped, equidistant protrusions 132." *Office Action* pg 3 ¶ 6.

The Applicants disagree. The Examiner appears to rely on the convention in mechanical patent applications that analogous parts may be identified, using sequential "hundred series" by the same root number when referring to a given element. Specifically, the Examiner infers there is parity between element 30 and element 130 in the cited patent to Blackman. This inference is incorrect as elements 30 and 130 are not both seal rings.

Moreover, the Examiner defines part numbers 43 and 30 in a manner contrary to the description of the same in Blackman's specification. Specifically, Blackman states,

Sealing across a gap 41 ... between an inside wall 42 ... of spindle 23 and an inside wall 45 ... of cavity 36 is **an elastomer seal 43**. Seal 43 is located adjacent to the juncture of spindle 23 with support arm 21 and protects against the infiltration of debris from the borehole annulus 16 through gap 41 to the space between the relatively-rotating bearing surfaces 38 and 39 of spindle 23 and cutter 11. *Blackman et al. col. 4 ln 58-66*. [emphasis added]

Therefore, Blackman clearly identifies element 43 as "an elastomer seal" and is completely silent in the incorporation of any textured feature in this same elastomer seal as projected in element 43 of FIG. 2. In addition, the Examiner refers to part number 132 in FIG. 4B as representative of textured features extending outward from a contact (i.e., sealing) surface. However, the specification provides no written description of element 132. However, adhering to the convention in mechanical patent applications that analogous parts may be identified, using sequential "hundred series", by the same root number when referring to a given element, the Applicants provide the following quote from Blackman regarding the definition element 32 which is apparently analogous to element 132 (*supra*):

In the illustrated embodiment, base 30 comprises a **low-alloy steel core 32** (FIG 2A) onto which is affixed a continuous layer or coating 49 of hard metal. **Core 32** may also be referred to as a "matrix ring". ... **Core 32** is preferably a ring-shaped piece of the same material as tip 29 ... *Blackman et al. col 6 ln 56-62*. [emphasis added]

Therefore, there is *no support in Blackman* for a finding that element 32, and analogous element 132, are protrusions extending outward from a contact (i.e., sealing) surface.

The Examiner's description of part number 30 as a seal is also contrary to Blackman's specification. That is to say, Blackman refers to part number 30 as the base portion that supports the construction of the cutting mechanism:

As shown in FIG. 2, inserts 13 are mounted within sockets 27 formed in a conically-shaped shell or tip 29 or cutter 11. **A base portion 30 of cutter 11** includes a frustoconically-shaped outer portion 33 with grooves 12 formed therein. ... **Base portion 30** may also be referred to as a "backbone ring" or "matrix ring". Outer portion 33 of base 30 defines in part backface 31 of cutter 11. **Base 30 also includes** an end portion 34 extending radially relative to central axis 35 of spindle 23. **Base portion 30 and tip 29 cooperate to form a composite rotary cone cutter 11**. *Blackman et al., col. 4, ln 40-51*. [emphasis added]

Applicants direct the Examiner to Blackman's explanation that seal element 43 protects and cutter element 11 *and* that cutter element 11 comprises base portion 30. Therefore,

Blackman clearly teaches that base element 30 and core element 32 are not seals. Moreover these element (e.g. 30 and 32) are clearly distinct from seal element 43. Finally, the elastomer seal element 43, taught by Blackman, is silent on the incorporation of any textured features. The Applicants, therefore, respectfully submit that Blackman fails to teach each and every element of the embodiment now claimed by the Applicants. Therefore, the reference cannot anticipate.

II. The Claims Are Not Obvious

The Examiner rejects claims 11-20 under 35 U.S.C. § 103(a) as being unpatentable over Zitting because,

"Zitting shows a seal comprising all the limitations of the claims but does not expressly disclose the outer peripheral edge as raised"
and
"... it would have been obvious to modify the seal of Zitting by raising the outer peripheral edge since such a modification would have involved a mere change in shape ..."
Office Action, pg. 4 ¶ 8.

The Applicants respectfully submit that the Examiner's analysis, captioned above, is insufficient to meet the Examiner's burden of establishing a *prima facie* case of obviousness.

The Examiner is reminded that a *prima facie* case of obviousness requires citation to a combination of references which (a) disclose the elements of the claimed invention, (b) suggests or motivates one of skill in the art to combine those elements to yield the claimed combination, and (c) provides a reasonable expectation of success should the claimed combination be carried out. Failure to establish any one of these three requirements precludes a finding of a *prima facie* case of obviousness, and, without more, entitle the Applicants to allowance of the claims in issue. See, e.g., *Northern Telecom Inc. v. Datapoint Corp.*, 15 USPQ2d 1321, 1323 (Fed. Cir. 1990).

As discussed in their rebuttal of the Examiner's rejection raised under 35 U.S.C. 102, The Applicants have already shown that Zitting fails to teach textured features that extend outward from a contact surface. The Examiner attempts to rehabilitate the deficiencies in Zitting by citing *In re Dailey* to support the Examiner's proposition that, "a change in shape is generally recognized as being within the level of ordinary skill in the art". *Office Action* pg 4

¶ 8. The Examiner citation to *In re Dailey* is of no moment. That is to say, the Examiner is required to provide *evidence* in support of a prima facie rejection based on obviousness.

The requirement that the Examiner make a showing of a suggestion, teaching or motivation is "an essential evidentiary component of an obviousness holding." *C.R. Bard, Inc. v. M3 Sys. Inc.*, 157 F.3d 1340, 1352 (Fed. Cir. 1998). There are three sources for this evidentiary component: the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved. *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573 (Fed. Cir. 1996). The suggestion most often comes from the teachings of the pertinent references. *In re Rouffet*, 149 F.3d 1350, 1359 (Fed. Cir. 1998). Nonetheless, regardless of the source of the requisite evidence, the Examiner's showing "must be clear and particular, and broad conclusory statements . . . standing alone, are not 'evidence'." *In re Dembiczak*, 175 F.3d 994, 1000 (Fed. Cir. 1999).

It is the Examiner's burden to present "evidence" and this showing must be "clear and particular." Importantly, since an Examiner is NOT one skilled in the art (under the law), the Examiner's opinion on what one skilled in the art might believe does not count. *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993) ("[T]he examiner's assumptions do not constitute the disclosure of the prior art.").

Of course, if the Examiner has knowledge of relevant facts which are used to make the rejection, the Examiner is free to use those facts - but only if submitted in the form of an affidavit. See 37 CFR 1.107(b). In the present case, the Examiner has submitted no such affidavit. Therefore Examiner's bald conclusion that, "it would have been obvious to modify the seal of Zitting by raising the outer peripheral edge since such modification would have involved a mere change in the shape of the outer peripheral edge" does not qualify as evidence competent to support a rejection under 35 U.S.C. § 103. Therefore, given the Examiner has admitted that Zitting, "does not expressly disclose the outer peripheral edge as raised", and has failed to provide competent evidence that address the shortcoming of the cited art, a *prima facie* case of obviousness has not been established. The Applicants respectfully submit that the pending rejection under 35 U.S.C. § 103 must be withdrawn.

III. Claim 22 Should Not Require A Terminal Disclaimer

The Examiner states that "Claim 22 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-46 of U.S. Patent No. 6,105,968." *Office Action*, pg. 5 ¶ 10. The Applicants disagree. Claim 22 is substantially broader in scope than the claims in the '968 patent. Nonetheless, without acquiescing to the Examiners' argument and in order to further the prosecution (while expressly reserving the right to prosecute the original (or similar) claims in the future) the Applicants provide a Terminal Disclaimer for Claim 22. The Applicants direct the Examiner's attention to the Terminal Disclaimer accompanying this Amendment as a separate paper. The Applicants, therefore, respectfully request the Examiner withdraw the rejection.

IV. Claim Objections

A. Claim 11 Is Not A Duplicate

The Applicants have canceled Claim 11 thereby making the Examiner's objection moot.


B. Claim 12 Is Properly Recited

The Examiner points to an apparent typographical error in Claim 12 and requests an amendment to change "position" to "positioned". The Applicants have made the amendment suggested by the Examiner.

CONCLUSION

The Applicants believes the arguments and amendments, set forth above, traverse the Examiner's rejections. The Applicants respectfully request that all pending rejection be withdrawn and that the application be passed to allowance. Should the Examiner believe that a telephone interview would aid in the prosecution of this application, the Applicant encourages the Examiner to call the undersigned collect at 617.252.3353.

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APPENDIX I
MARKED-UP VERSION OF REWRITTEN CLAIMS
PURSUANT TO 37 CFR § 1.121 (c)(1)(ii)

1. (Twice Amended) A seal, comprising:
 - a) a mounting ring;
 - b) a seal ring attached to said mounting ring, said seal ring comprising a contact surface, said contact surface comprising i) an inner peripheral edge, ii) an outer peripheral edge, and iii) circumferentially located textured features, wherein said textured features extend outward from said contact surface and are positioned interior to said outer peripheral edge.

12. (Twice Amended) A seal, comprising:
 - a) a mounting ring;
 - b) a seal ring attached to said mounting ring, said seal ring comprising a contact surface, said contact surface comprising i) an inner peripheral edge, ii) a raised outer peripheral edge, and iii) circumferentially located textured features, wherein said textured features extend outward from said contact surface and are positioned interior to said outer peripheral edge.

22. (Amended) A seal assembly, comprising:
 - a) a first surface, said first surface comprising an outer peripheral edge and circumferentially located textured features interior to said outer peripheral edge, wherein said textured features comprise protrusions extending outward from said first surface; and
 - b) a second surface in motion relative to said first surface; wherein said first surface contacts said second surface under conditions such that a seal is produced.